

REMARKS

The Examiner requested that the Applicants clarify several terms in the claims and point out support for a system with two Fibre Channel transport media. Applicants appreciate the Examiner's efforts to expedite prosecution and address the Examiner's request for particular definitions and showings of support in the remarks provided below.

I. Objections to Drawings

The drawings stand objected to as failing to comply with 37 C.F.R. § 1.83(a) as not showing every feature of the invention specified in the claims because they do not show the claimed limitation regarding the first and second media being a Fibre Channel protocol type. Applicants note, however, that such a drawing is only required "where necessary for the understanding of the subject matter sought to be patented." As discussed in more detail below, the Specification discloses an implementation in which the initiator is a Fibre Channel initiator, the target is a Fibre Channel target. See Specification at page 15, lines 12-17. Specifically, the Specification states that the "storage router has various modes of operation that are possible between FC and SCSI target and initiator combinations. These modes are: FC Initiator to SCSI Target; SCSI Initiator to FC Target; SCSI Initiator to SCSI Target; **and FC Initiator to FC Target.**" *Id.* (emphasis added). The figures provided in the invention, along with the Specification, provide additional information relating to the invention in detail necessary to support this FC initiator to FC target embodiment. One of skill in the art would not require an additional drawing to understand that a workstation (or other initiator) can be connected to the storage router via Fibre Channel and a storage device (or other target) can be connected to the storage router via Fibre Channel. Therefore, Applicants submit that such a drawing showing a storage router connected to two Fibre Channel transport mediums is not necessary for an understanding of the invention and not required under 37 C.F.R. § 1.83(a). Accordingly, withdrawal of this rejection is respectfully requested.

II. Objection to Specification

The Examiner also objected to the Abstract and the Specification. Applicants have amended the Abstract to describe that the two transport media are Fibre Channel.

Furthermore, the Specification specifically discloses a Fibre Channel Initiator-to-Fibre Channel target mode at page 15, lines 12-17:

The storage router has various modes of operation that are possible between FC and SCSI target and initiator combinations. These modes are: FC Initiator to SCSI Target; SCSI Initiator to FC Target; SCSI Initiator to SCSI Target; **and FC Initiator to FC Target.** (Emphasis Added).

Thus, the Specification specifically recites that one embodiment of the invention is a FC initiator device and a FC target storage device. This FC initiator to FC storage device embodiment is entirely consistent with the recitations in claims 15-53.

In fact, the Specification goes further and discloses two additional particular embodiment of the Fibre Channel Initiator-to-Fibre Channel target mode at page 15, lines 17-25:

The first two modes can be supported concurrently in a single storage router device are discussed briefly below. The third mode can involve two storage router devices back to back and can serve primarily as a device to extend the physical distance beyond that possible via a direct SCSI connection. **The last [FC Initiator to FC Target] mode can be used to carry FC protocols encapsulated on other transmission technologies (e.g. ATM, SONET), or to act as a bridge between two FC loops (e.g. as a two port fabric).** (Emphasis Added).

This description clearly shows that the last mode (the FC initiator to FC target mode where both the transport medium to which a host is connected and the transport medium to which the storage device is connected is a Fibre Channel transport medium) can done in a variety of ways, including the examples recited where (1) the FC protocols are carried on other transmission technologies and (2) the storage router acts as a bridge between two FC loops. The Specification therefore discloses an invention that includes a FC initiator to FC target embodiment, along with two distinct examples of that embodiment. Therefore, Applicants respectfully request withdrawal of this objection.

III. Claim Term Definitions

The Examiner also requested the Applicant provide definitions for several claim terms. As the Examiner is aware, the claims in US Patent No. 5, 941, 972 have been interpreted by

the U.S. Federal District Court in the case *Crossroads v. Chaparral Network Storage, Inc.*, Western District of Texas, Civil Action No. A-00-CA-217-SS and *Crossroads Systems (Texas), Inc., v. Pathlight Technology, Inc.*, Western District of Texas, Civil Action No. A-00CA-248-JN (collectively, the "Chaparral Litigation"). In that case, the Federal District Court issued a Joint Markman Order (the "Markman Order") interpreting the terms "native, low level block protocol" and "map". Applicant will rely on both the Specification and this Markman Order in response to the Examiner's request to define these terms.

A. Native Low Level Block Protocol ("NLLBP")

The term "native low level block protocol" (or "NLLBP") is a protocol that enables computers to exchange information that does not involve the overhead of high level protocols and file systems typically required by network servers. This definition is supported in the Specification and prior litigation interpreting this claim term.

According to the invention, the host computers connected to the first transport medium are allowed to access the remote storage devices using a NLLBP. In systems prior to the present invention, when making a request to storage through a network server to allow access between workstations and remote storage devices, a workstation typically had to translate the requests from its file system protocols to higher level network protocols in order to communicate with the network server, and the network server would then translate them into low level requests to the storage device(s). In contrast, as described in the Specification, allowing a host to access storage devices using a NLLBP provides a mechanism by which communication between the host and the storage devices can be accomplished faster because there is no need to translate from a network protocol to a NLLBP. See Specification, page 2, line 17-page 3, line 13; page 7, line 17-26 (distinguishing an NLLBP from higher-level protocols by contrasting the present invention (allowing access using NLLBP) to prior art solutions (which allowed access using network protocols requiring translation to NLLBP)). Thus, the Specification points out that a native low level block protocol is one that does not involve the overhead of high level protocols used by network servers.

Furthermore, in the Chaparral Litigation the Federal District Court issued its Markman Order defining the term "NLLBP" as follows: "a set of rules or standards that enable computers to exchange information and do not involve the overhead of high level protocols and file systems typically required by network servers." A copy of the Markman Order is attached

hereto as Exhibit A. This construction and the validity of the '972 Patent was upheld by the Federal Circuit. A copy of the Federal Circuit decision affirming the decision of the lower court is attached hereto as Exhibit B. Thus, based on both the Specification and the Markman Order, an NLLBP is a protocol that enables computers to exchange of information without the overhead of high-level protocols and file systems typically required by network servers.

B. Mapping

The term "mapping" means to create a path from a host device on one side of the storage router to a device on the other side of the router where a map contains a representation of the devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate to a device on the other side of the storage router, the storage router can connect the devices. This definition is supported by the Specification and prior litigation interpreting this claim term.

Mapping between devices connected to the first transport medium and storage devices in the present application refers to a mapping between the workstations/host computers and storage devices such that a particular workstation/host computer on the first transport medium is associated with a storage device, storage devices or portion thereof on the second transport medium. As discussed in the Specification, the mapping provides a correlation between devices on the first data transport medium and the storage devices through one or more steps, and can, for example, be implementing through the use of mapping tables. See, Specification, page 4, lines 15-21; page 4, line 28-page 5, line 6; page 9, lines 7-8, page 10, lines 4-7 and page 22, lines 8-11. Thus, the Specification points out that mapping provides a correlation between a host device and a storage device so as to create a path the storage router can use to connect the host device to the storage device.

Additionally, the Federal District Court in the Chaparral Litigation defined the term "map" in its Markman Order as follows: "to create a path from a device on one side of the storage router to a device on the other side of the router, i.e., from a Fibre Channel device to a SCSI device (or vice-versa). A map contains a representation of devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate to a device on the other side of the storage router, the storage router can connect the devices." See, Markman Order, Exhibit A, page 12. Thus, the mapping of the present invention associates a representation of the host device(s) on the first transport medium with a

representation of the storage devices on the second transport medium to create a path between the hosts and the remote storage devices (or portion(s) thereof).

C. Support for Fibre Channel-to-Fibre Channel Implementation

As discussed above, the Specification discloses a Fibre Channel Initiator-to-Fibre Channel target mode. See, Specification, page 15, lines 12-25.

The storage router has various modes of operation that are possible between FC and SCSI target and initiator combinations. These modes are: FC Initiator to SCSI Target; SCSI Initiator to FC Target; SCSI Initiator to SCSI Target; **and FC Initiator to FC Target.** (Emphasis Added). The first two modes can be supported concurrently in a single storage router device are discussed briefly below. The third mode can involve two storage router devices back to back and can serve primarily as a device to extend the physical distance beyond that possible via a direct SCSI connection. **The last [FC Initiator to FC Target] mode can be used to carry FC protocols encapsulated on other transmission technologies (e.g. ATM, SONET), or to act as a bridge between two FC loops (e.g. as a two port fabric).** (Emphasis Added).

Thus, the Specification specifically recites that one embodiment of the invention is a FC initiator device and a FC target storage device. This FC initiator to FC storage device embodiment is entirely consistent with the recitations in claims 15-53.

IV. Rejections Under 35 U.S.C. §112

The Examiner rejected Claim 15-53 under 35 U.S.C. §112, first paragraph, because the Examiner asserts that i) the best mode contemplated by the inventor has not been disclosed and ii) the disclosure does not meet the enablement requirement. The basis for these rejections asserted by the Examiner is that the "disclosure does not clearly disclose any details of the present claims regarding the first and second media being both Fibre Channel transport as a whole."

As previously discussed, Applicants respectfully submit that an implementation having both a first Fibre Channel transport and a second Fibre Channel transport is disclosed at page 15, lines 12-25, as discussed above. This FC initiator to FC target mode represents one embodiment of the invention generally described in the remainder of the Specification and the Drawings. In addition, the Applicants went further and discussed two additional example implementations of this FC initiator to FC target mode embodiment: in one example

implementation, the Fibre Channel protocols can be encapsulated on other transmission technologies (e.g., ATM, SONET); in the other example implementation, the storage router acts as a bridge between two Fibre Channel loops (i.e., a first fibre channel transport medium and a second fibre channel transport medium). Contrary to the Examiner's assertion, Applicants respectfully submit that there is no evidence that the inventors concealed the best mode of connecting fibre channel transport media.

The Specification further provides support for implementing the configuration, mapping and access controls for Fibre Channel devices so as to enable one of ordinary skill in the art to practice the FC initiator to FC storage device embodiment of the invention. As one example, the Specification discusses the particulars of Fibre Channel devices, specifically stating:

Fibre Channel devices within a fabric are addressed by a unique port identifier. This identifier is assigned to a port during certain well-defined states of the FC protocol. Individual ports are allowed to arbitrate for a known, user defined address. If such an address is not provided, or if arbitration for a particular user address fails, the port is assigned a unique address by the FC protocol. This address is generally not guaranteed to be unique between instances. Various scenarios exist where the AL-PA of a device will change, either after power cycle or loop reconfiguration.

The FC protocol also provides a logical unit address field within command structures to provide addressing to devices internal to a port. The FCP CMD payload specifies an eight byte LUN field. Subsequent identification of the exchange between devices is provided by the FQXID (Fully Qualified Exchange ID). See, Specification, page 19, lines 9-25.

Thus, the Applicants described these addressing conventions in a manner that would enable one of ordinary skill in the art to implement them for Fibre Channel devices.

As another example relating to mapping, the Specification states that "mapping can be implemented through the use of mapping table or other mapping techniques." See, Specification, page 9, lines 7-8; page 10, lines 4-7. Based on the disclosed Fibre Channel addressing techniques, one of ordinary skill in the art would understand how to implement a table that maps Fibre Channel initiators to Fibre Channel storage devices or portions thereof. In yet another example, the Specification provides that access controls limit a computers access to specified storage devices or portions thereof. See, Specification, page 10, lines 20-24. The storage router can use tables to map, for each initiator, what storage access is

available and what partition is being addressed by a particular request. See, Specification page 22, lines 8-11. Based on the Fibre Channel addressing scheme, those in the art would understand how to use tables to map Fibre Channel initiators to Fibre Channel targets to control access by the Fibre Channel targets to assigned storage devices or portions thereof. Thus, in the Fibre Channel Initiator-to-Fibre Channel target embodiment, one of ordinary skill in the art would understand how to provide tables that map a representation of a Fibre Channel initiator device to a representation of a Fibre Channel target device and that cause requests from particular Fibre Channel Initiators to be directed (or not allowed to be directed) to particular storage.

The present application thus discloses i) a Fibre Channel initiator-to-Fibre Channel target mode of operation, ii) mapping achieved through, for example, tables and iii) access controls are implemented through mapping in an enabling manner. There is simply no evidence that the inventors concealed some better way of practicing the present invention. Based on the Specification, one of ordinary skill in the art would understand how to provide tables that map Fibre Channel initiator devices to a Fibre Channel target devices and that cause certain requests from a Fibre Channel Initiator to be directed to permitted storage, thus allowing the use of NLLBP from the Fibre Channel Initiator to the storage router and from the storage router to the Fibre Channel target. Applicants therefore respectfully request withdrawal of the Claim rejections.

V. Double Patenting Rejections

Claims 15-53 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 5,941,972. Applicants are including with this reply a timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c). U.S. Patent No. 5,941,972 and the current Application are commonly owned. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 15-53 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,425,035. Applicants are including with this reply a timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c). U.S. Patent No. 6,425,035 and the current Application are commonly owned. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 15-53 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6,738,854. Applicants are including with this reply a timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c). U.S. Patent No. 6,738,854 and the current Application are commonly owned. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 15-53 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,763,419. Applicants are including with this reply a timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c). U.S. Patent No. 6,425,035 and the current Application are commonly owned. Accordingly, withdrawal of this rejection is respectfully requested.

VI. Conclusion

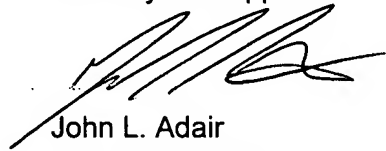
Applicants have now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of the pending claims. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

An extension of three (3) months is requested and a Notification of Extension of Time Under 37 C.F.R. § 1.136 with the appropriate fee is enclosed herewith.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

Sprinkle IP Law Group
Attorneys for Applicant

A handwritten signature in black ink, appearing to read 'John L. Adair', is written over a horizontal line.

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Date: July 27, 2005

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